



ENERGY CONSERVATION AND
DEMAND MANAGEMENT PLAN

2019-2024

Introduction

In 2011, the Province of Ontario enacted Ontario Regulation 397/11 - Energy Conservation and Demand Management Plan (ECDMP) passed under the Green Energy Act, 2009, making it necessary for all public agencies to manage and report on their energy usage. Specifically, the regulation requires designated public agencies to:

- Prepare, publish (on its website and in printed form) and submit to the Ministry of Energy, the Township's energy consumption and greenhouse gas emission data on an annual basis; and

In addition, the designated public agencies must develop and publish a detailed energy conservation and demand management plan by July 1, 2014, including:

- A summary of annual energy consumption and greenhouse gas emission;
- A description of previous, current and proposed measures for conserving and reducing energy consumption;
- A forecast of expected results of current and proposed conservation and energy reduction measures.

Designated public agencies are required to publish an updated plan every 5 years thereafter that reviews measures implemented in the previous plan.

The Province repealed the Green Energy Act in 2018 and amended the Electricity Act, 1998 to include these two requirements under O.Reg 507/18 (attached as Appendix C).

This plan is the second plan and it must include the following:

- A description of current and proposed measures for conserving and otherwise reducing energy consumption and managing its demand for energy.
- A revised forecast of the expected results of the current and proposed measures.
- A report of the actual results achieved.
- A description of any proposed changes to be made to assist in reaching any targets it has established or forecasts it has made

Annual Energy Usage

The energy data from 2012-2017 shows an overall decrease in the GHG emissions of 9%. The detailed energy usage data is attached as Appendix A.

TABLE 1 – TOTAL GHG EMISSIONS

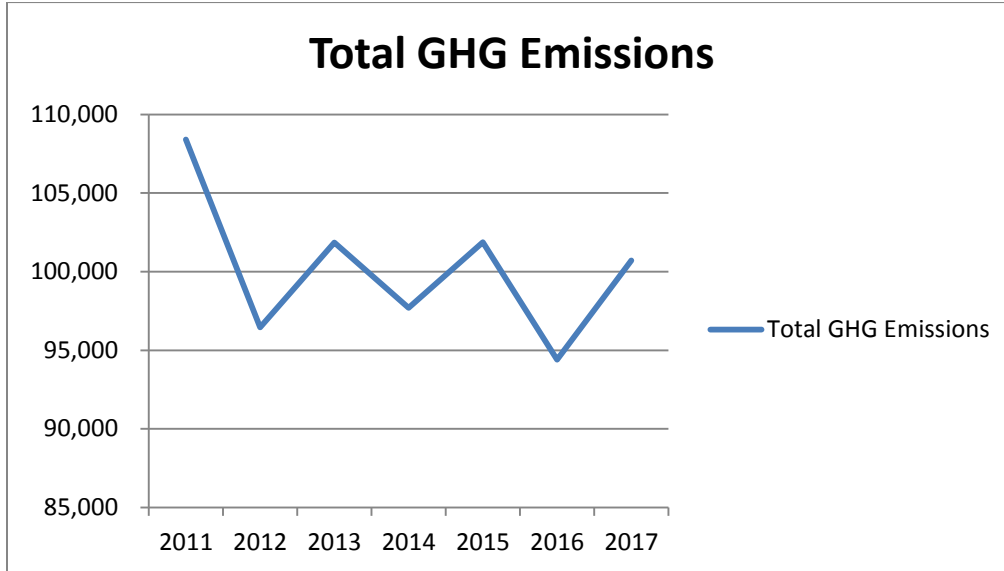


TABLE 2 – OVERVIEW OF GHG EMISSIONS BY FACILITY

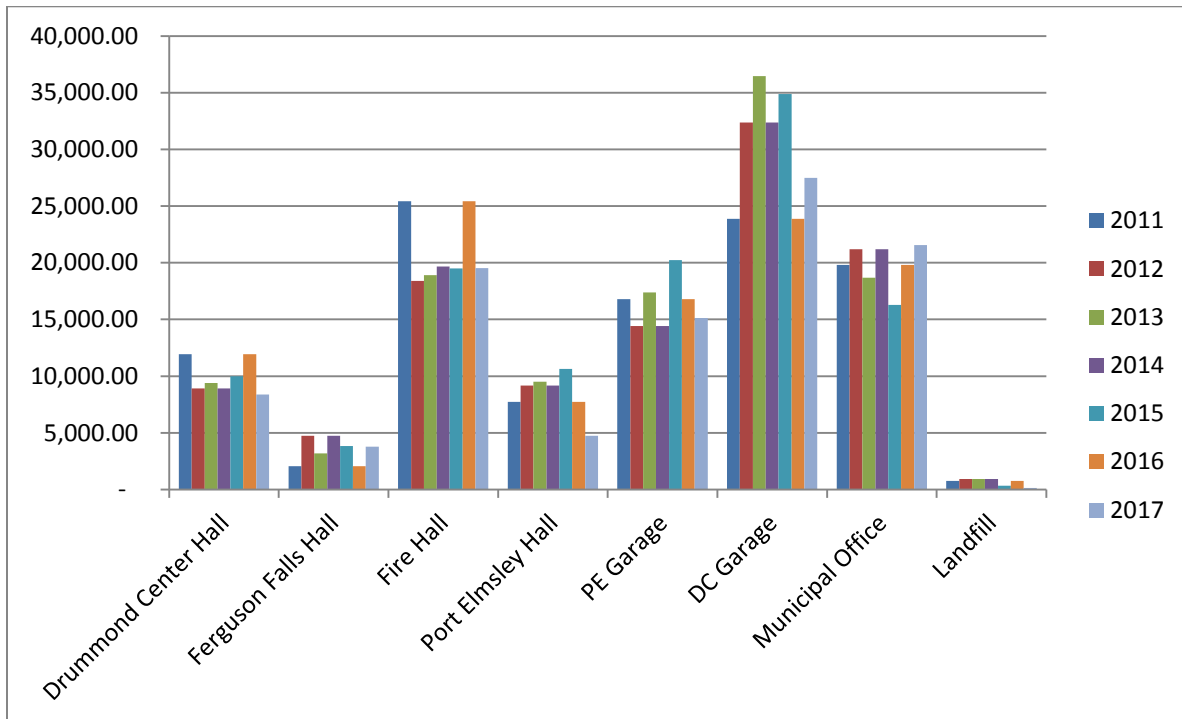


TABLE 3 – ENERGY INTENSITY

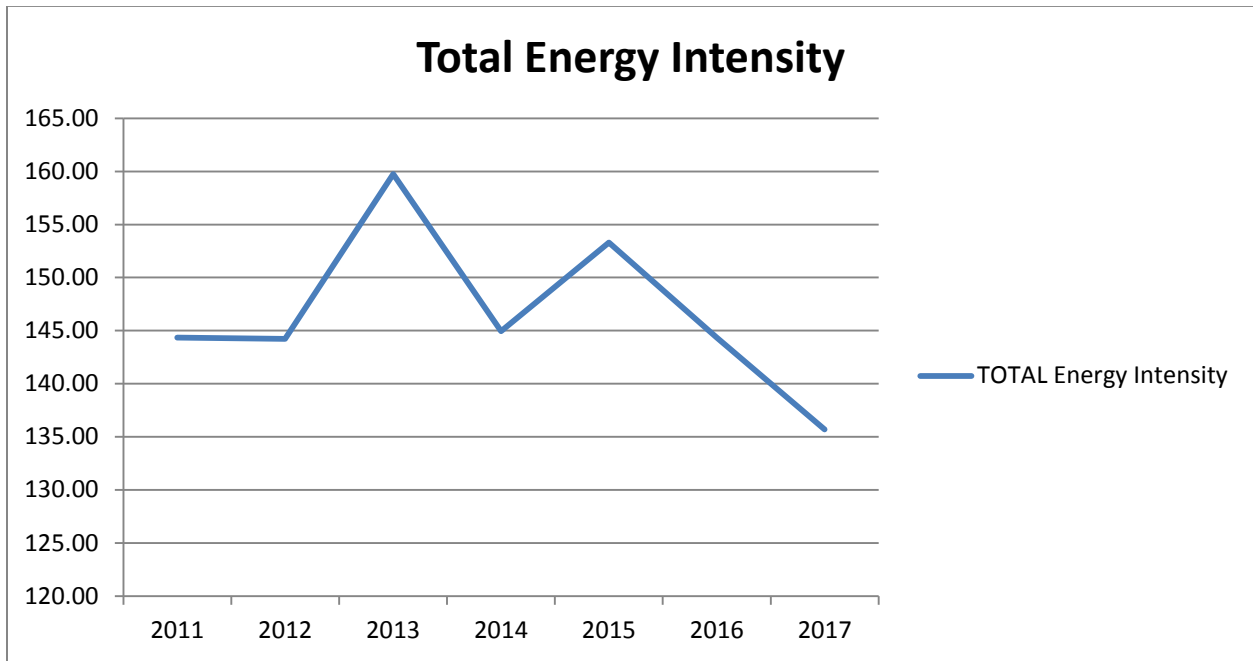
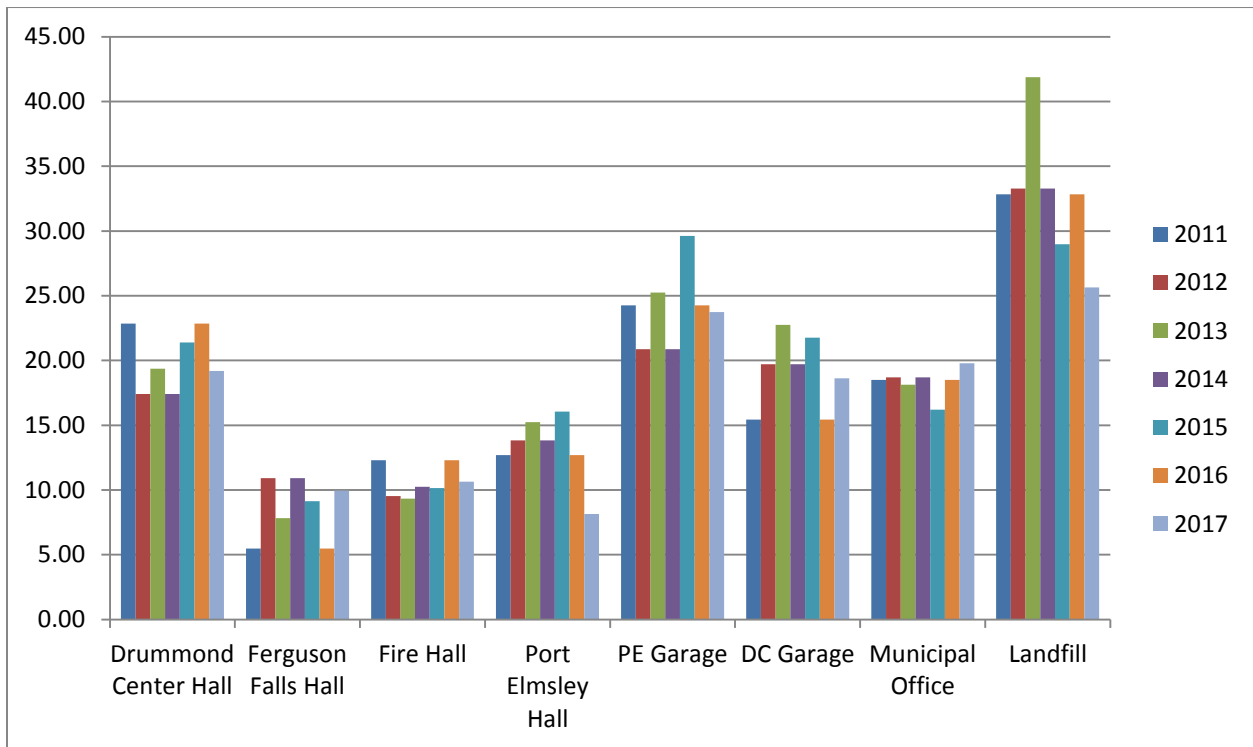


TABLE 4 – OVERVIEW OF ENERGY INTENSITY BY FACILITY



Much of the Township's energy usage is weather dependent. An increase in fire calls determines how often the fire hall is used which increases energy usage. Winters that start earlier or last longer or experience more snowstorms impacts the energy usage at the public works facilities after working hours. A hot summer and cold winter means the heating and cooling systems are using more energy. So it can be difficult to determine if our energy reduction measures are working because of the impact of weather. However we now have 8 years of data and as this data grows, we should have more predictability of the evaluation of the plan's projected outcomes.

2014-2019 Plan Results

The stated goals of the 2014-2019 ECDMP were:

1. Reduce GHG emissions overall by Township facilities per square foot by 10% from 2011 levels by 2018.

OUTCOMES

The total GHG emissions in 2011 were 108,394.93242 kg. The average GHG emissions 2012-2017 were 98,829.50 over the six-year period, a reduction of almost 9%.

2. Reduce GHG emissions by a further 5% by 2025.

COMMENT

This goal will be carried forward into this plan.

Other Energy Saving Activities

Some of the activities not listed in the plan which helped the Township achieve energy reduction are:

- Timely vehicle/equipment replacement: Old vehicles and equipment were replaced with new and more energy efficient vehicles and equipment. The Township's stock of equipment and vehicles are all in good mechanical condition with less GHG emissions (ongoing). The oldest vehicle is a 2000 single axle snow plow which is used as a spare vehicle. It will be taken out of the inventory in 2020.
- Office Equipment: The Township's photocopiers were replaced in 2014 and 2017 and are energy efficient and have a sleep mode when not in use.
- The old refrigerators at Ferguson's Fall Hall and the Drummond Garage were replaced with energy star certified ones. (2018)

- Replacement municipal office T-8 florescent light tubes with new LED lighting. (2019)
- Replacement of municipal office furnace with an energy star certified efficient furnace. (2018)
- Best practices education awareness with Staff (2014)

Decrease in Energy Costs

In terms of energy costs, the Township is spending less on energy in 2019 than it did in 2014. This however may have resulted in part from the decrease in oil prices since 2014. As well, the disposal of the Port Elmsley Hall in November 2017 will account for \$6,000 of the reduction in energy costs.

TABLE 5 – ENERGY COST COMPARISON 2014-2019

Energy Type	2014	2019
Heating	\$32,200	\$28,000
Hydro	\$24,710	\$26,500
Fuel	\$102,200	\$95,000
TOTAL	\$159,110	\$149,500

2019-2024 Goals and Objectives

- To reduce greenhouse gas emissions and energy consumption in day-to-day operations and extend the lifecycle of Township assets, where possible;
- To maximize fiscal resources through direct and indirect energy cost avoidance;
- To increase conservation awareness and mindfulness among staff through education and utilizing best practices;
- Reduce greenhouse gas emissions by 5%

Proposed Measures 2019-2024

The proposed measures for 2019-2024 are:

- Replace 112 High Pressure Sodium Street Lights to LED which typically use 60% less electricity and a 15-20 life span which results in lower maintenance costs.
- Oil Furnaces convert to propane: replace Drummond Hall furnace and Port Elmsley Garage furnace

- Convert lighting in both garages to LED lighting
- Conduct employee training refresh on energy savings best practices

Forecast of Results for Cost Saving Estimates

Streetlights Conversion to LED including maintenance costs	\$15,000
Oil furnace conversion to propane high efficiency	\$12,000
Convert lighting in both garages to LED lighting	<u>\$ 3,000</u>
Total estimated annual savings per year*	\$30,000

*when all measures are in place.

Summary

The initiatives contained in the report will lead to lower energy consumption, lower GHG emissions and cost savings.

Confirmation of Management Approval

This report has the approval of the Clerk Administration and Council. It was presented and adopted by Council by Resolution No. 19-090 on June 25, 2019.

APPENDIX A

ENERGY DATA 2011-2017

2011-2017 GHG EMISSIONS & ENERGY INTENSITY

GHG Emissions (KG)	2011	2012	2013	2014	2015	2016	2017
Drummond Center Hall	11,938.20	8,916.85	9,407.67	8,916.85	9,983.55	11,938.20	8,374.89
Ferguson Falls Hall	2,061.89	4,728.09	3,174.23	4,728.09	3,828.53	2,061.89	3,768.08
Fire Hall	25,439.13	18,402.24	18,910.88	19,656.93	19,496.73	25,439.13	19,527.35
Port Elmsley Hall	7,732.04	9,167.66	9,500.90	9,167.66	10,626.46	7,732.04	4,743.72
PE Garage	16,790.78	14,422.85	17,393.40	14,422.85	20,226.77	16,790.78	15,119.40
DC Garage	23,876.42	32,356.37	36,449.44	32,356.37	34,891.50	23,876.42	27,471.04
Municipal Office	19,800.32	21,179.56	18,687.62	21,179.56	16,284.79	19,800.32	21,572.95
Landfill	756.16	920.64	916.72	920.64	338.44	756.16	127.73
Total GHG Emissions	108,394.93242	96,449.3347	101,858.9622	97,704.0247	101,864.6922	94,394.84936	100,705.15954

Energy Intensity	2011	2012	2013	2014	2015	2016	2017
Drummond Center Hall	22.85	17.41	19.36	17.41	21.40	22.85	19.19
Ferguson Falls Hall	5.47	10.92	7.82	10.92	9.12	5.47	9.95
Fire Hall	12.29	9.52	9.33	10.24	10.15	12.29	10.63
Port Elmsley Hall	12.70	13.83	15.24	13.83	16.06	12.70	8.16
PE Garage	24.27	20.87	25.25	20.87	29.62	24.27	23.74
DC Garage	15.44	19.72	22.74	19.72	21.75	15.44	18.61
Municipal Office	18.50	18.69	18.14	18.69	16.20	18.50	19.77
Landfill	32.82	33.28	41.88	33.28	28.98	32.82	25.64
TOTAL	144.34282	144.24268	159.7563174	144.960246	153.29509	144.34283	135.69310

2011-2017 ENERGY DATA BY TYPE

ELECTRICITY	2011	2012	2013	2014	2015	2016	2017
Drummond Center Hall	12221.000	11548.000	14254.32	15,819.680	15,068.390	14,935.3200	14,632.80000
Ferguson Falls Hall	3656.000	3187.000	3461.99	2,674.290	2,526.112	2,813.9000	4,457.98000
Fire Hall Administrative and Training	32575.310	46250.000	27619.63	30,480.000	30,275.350	37,600.8902	32,625.76920
Port Elmsley Hall	14726.000	13066.000	16193.32	11,500.650	11,328.240	9,195.9000	7,945.73000
Public Works Yard #1 Port Elmsley	27182.660	26091.000	28300.68	27,593.780	28,540.560	27,538.9200	25,220.59000
Public Works Yard #2 Drummond Center	24442.000	23097.000	28508.65	23,729.520	22,602.590	22,402.9800	21,949.20000
Municipal Office	54365.330	52182.000	56601.35	41,390.680	42,810.840	41,308.3900	37,830.88000
Township Landfill	9452.000	9586.000	12060.17	9,731.570	8,346.631	5,715.5300	7,384.00000
TOTAL	180631.3	185,007.00	187,000.11	162,920.170	161,498.713	161,511.8302	152,046.94920
FUELS 1 & 2	2011	2012	2013	2014	2015	2016	2017
Drummond Center Hall	4018.66	2854.60	3043.4	3,017.4	3,426.70	3,239.90	2,969.40000
Port Elmsley Hall	2403.00	2893.00	3023.6	4,122.3	3,717.20	3,085.52	1,684.10000
Public Works Yard #1 Port Elmsley	5359.00	4357.00	5572.7	8,405.1	6,972.00	6,333.60	5,368.30000
Public Works Yard #2 Drummond Center	8037.33	11018.80	12534	12,360.0	12,421.60	10,119.20	6,845.50000
TOTAL	19817.99	21,123.40	24,173.70	27,904.80	26,537.50	22,778.22	16,867.30
NATURAL GAS	2011	2012	2013	2014	2015	2016	2017
Fire Hall Administrative and Training	12077.00	7384.00	8892.00	9752.00	9663.00	9765.00	10,030.00000
PROPANE	2011	2012	2013	2014	2015	2016	2017
Ferguson Falls Hall	1146.00	2869.60	1889.1	1,535.50	2,418.0	2,364.50	2,395.20000
Municipal Office	10007.29	10492.00	9335.1	11,867.62	9,441.3	11,193.90	13,574.80000
Drummond Centre							5,430.20000
TOTAL	11153.29	13,361.60	11,224.20	13,403.12	11,859.3	13,558.4	21,400.20000

APPENDIX B List of Facilities

Municipal Office / PW Garage 310 Port Elmsley Road		
Square Footage:	Office:	6,740
	Garage	3,500

Drummond Centre Hall /PW Garage 1920 Drummond Concession 7		
Square Footage:	Hall:	2,430
	Garage	7,194

Ferguson's Falls Community Hall 1362 Ferguson's Falls Road		
Square Footage:		2,140

Waste Site Trailer 745 Code Road		
Square Footage:		288

BBDE Fire Hall 14 Sherbrooke Street East		
Square Footage:		13,095

APPENDIX C
BROADER PUBLIC SECTOR: ENERGY REPORTING
AND CONSERVATION AND DEMAND MANAGEMENT PLANS

O. Reg 507/18

Energy conservation and demand management measures

6. (1) Every public agency shall publish on its website and intranet site, if it has either or both, and make available to the public in printed form at its head office,

- (a) the information referred to in subsection 25.35.2 (3) of the Act with respect to each of the public agency's operations set out in Table 1 of this Regulation for the type of public agency to which the public agency belongs;
- (b) the information referred to in paragraph 2 of subsection 4 (2) of this Regulation with respect to each of the public agency's operations set out in Table 1 of this Regulation for the type of public agency to which the public agency belongs; and
- (c) the following information:
 - (i) information on the public agency's annual energy consumption during the last year for which complete information is available for a full year,
 - (ii) the public agency's goals and objectives for conserving and otherwise reducing energy consumption and managing its demand for energy,
 - (iii) the public agency's proposed measures under its energy conservation and demand management plan,
 - (iv) cost and saving estimates for its proposed measures,
 - (v) a description of any renewable energy generation facility operated by the public agency and the amount of energy produced on an annual basis by the facility,
 - (vi) a description of,
 - (A) the ground source energy harnessed, if any, by ground source heat pump technology operated by the public agency,
 - (B) the solar energy harnessed, if any, by thermal air technology or thermal water technology operated by the public agency, and
 - (C) the proposed plan, if any, to operate heat pump technology, thermal air technology or thermal water technology in the future,
 - (vii) the estimated length of time the public agency's energy conservation and demand management measures will be in place, and
 - (viii) confirmation that the energy conservation and demand management plan has been approved by the public agency's senior management.

(2) In addition to publishing and making available the required information with respect to the operations mentioned in clauses (1) (a) and (b), a public agency may also publish information with respect to any other operation that it conducts.

(3) On or before July 1, 2019 and on or before every fifth anniversary thereafter, every public agency shall publish on its website and intranet site, if it has either or both, and make available to the public in printed form at its head office all of the information that is required to be published and made available under subsection (1), the Energy Consumption and Greenhouse Gas Emissions Reporting form that is required to be submitted and published on or before July 1 of that year and the following information:

1. A description of current and proposed measures for conserving and otherwise reducing energy consumption and managing its demand for energy.
2. A revised forecast of the expected results of the current and proposed measures.
3. A report of the actual results achieved.
4. A description of any proposed changes to be made to assist the public agency in reaching any targets it has established or forecasts it has made.